



# MAGAZINE

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## CONTENTS

Canada and C.I.L., by the Editor	38
One Man and His Job—Vacation Student	44
Pigeons are Big Business, by Walter J. C. Boag	46
Garden Notes, by Philip Harvey	50
Canadian Boom, by the Editor	52
News in Pictures	58
Pictures from Overseas	62
I.C.I. News	64
The Running Tide, by Francis L. Ashton	68

Front cover: *Exmouth from Luscombe Hill*, by W. B. Salter (General Chemicals Division)

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# Canada and C.I.L.

By the Editor

Last autumn the Editor toured Canada from coast to coast, visiting the plants and offices of Canadian Industries Ltd., the big Canadian chemical company in which I.C.I. is the controlling shareholder. Here is the editor's story of C.I.L. as he found it—a story which should be set against the picture of the Canadian boom sketched on page 52.

Photographs by George Hunter. Map based on relief published by courtesy of Canadian Aero Services Ltd.

"THAT," said the explosives sales executive as he replaced the receiver, "was a fellow calling long-distance from the bush. There was frying bacon on the line. I couldn't hear much. I guess he was lonely."

I was sitting in the Toronto office of Mr. Laprairie, a big burly man in his early sixties and one of the best-known and best-liked personalities in Canadian Industries Ltd. On the wall beside his desk hung portraits of his nine children; the youngest had got married the week before and the eldest had won the D.S.O. in the last war. Lap, as he is affectionately known by all and sundry, gave me a warm welcome.

"Come and have lunch at the club and meet the boys," he said. The boys turned out to be the presidents and vice-presidents of mining companies.

Lap is only one of several vigorous personalities whom I met in explosives sales. He is perhaps the most widely known by virtue of imaginative and original work on the technical side. To Lap goes the credit for an idea, patented under his name, which saved the Ontario Hydro Power Commission some \$800,000 during the construction of an extension to the power plant at Niagara Falls.

The problem was to blast a "plug" and connect the forebay of the new power station with the forebay of the old. Because the plug was only 85 yards from the old station it was feared that the shock wave of the blast would damage the turbines. So the plan was to drain the old forebay of water, which would mean closing the station several days and buying power from the United States at an estimated cost of \$1,000,000. Lap suggested a new approach.

"Why not place an air curtain in the water of the forebay to dissipate the shock waves set up by the blast?" he asked. "Then we could blast the entire plug in one shot without closing down. If we release air in the water of the forebay between the plug and the plant at the same time as we blast the plug, the air bubbles arising to the surface of the water may cushion the blast effect."

Ontario Hydro reacted energetically to this proposal. Small-scale trials were conducted and found successful. They proved that an air bubble curtain could reduce shock waves to one-seventieth of what they would have been.

It was decided to go ahead and put to the test the results of this research. The big blast took place without water diversion and a new technique of controlled underwater blasting had been successfully evolved.

For C.I.L. this was a major success. Explosives are big business for C.I.L. The boom in mining, the boom in oil discovery with its need for seismographic survey, the boom in road building, the boom in hydro construction—all these things have produced a soaring demand for explosives. At the moment C.I.L. is the sole manufacturer of explosives in Canada, a position which will be challenged for the first time in over thirty years when a competitive plant at North Bay in Ontario comes into operation this year.

However, C.I.L. is in a strong position to compete. Their technical service is of a high order. Many if not most of the explosives salesmen are qualified mining engineers with practical mining experience. One whom I met was a geologist. All were highly

trained and capable men with whom a mine manager would profitably spend time in discussion.

C.I.L. have been in the explosives business a long time. Their association goes back to the Hamilton Powder Co., formed in 1862. At Beloeil near Montreal they still make explosives on the site of the plant where dynamite was made for the building of the Canadian Pacific Railway. Shortly C.I.L. will have six explosives plants in all, spread out over Canada from coast to coast.

### Ghost Towns

Explosives are not C.I.L.'s only link with mining. Large quantities of chemicals are consumed by the mining industry, in particular for the extraction of gold and uranium. Gold mining takes a bit of a back seat in Canada today. You hear talk of the ghost towns in Canada where the mines are now worked out or have become unprofitable because of rising costs. Nevertheless gold is Canada's third most valuable mineral in terms of output value, coming after nickel and copper. The gold is extracted from the ore through the action of cyanide, a chemical which C.I.L. supplies in large quantities imported from the General Chemicals Division of I.C.I.

In the field of chemicals for uranium extraction C.I.L. is also to the fore. The two major chemicals needed are sulphuric acid and nitric acid, the former in very large quantities indeed. Eighty pounds of sulphuric acid are used for every ton of ore milled. This is big business when the largest group of some dozen new mines in the Blind River area mill 9000 tons of ore a day. To supply these needs C.I.L. announced last December the erection of a large new sulphuric acid plant near Sudbury, which will produce acid from the gases of International Nickel Company's smelter. Nitric acid for uranium extraction is also supplied by C.I.L., and the question of putting up additional nitric acid plant is being studied.

### New Plant

All this links up with C.I.L.'s existing business in heavy chemicals. There is already a large C.I.L. plant near Sudbury converting INCO smelter gases into sulphuric acid or sulphur dioxide for use by the paper and pulp industry. This latter industry—Canada's largest industry after mining—is a big consumer of C.I.L.'s chemicals, in particular caustic soda and chlorine. Recently new processes for the bleaching of textiles and other demands have induced





**● MINING CENTRES, ETC.**

1. Blind River	8. Knob Lake
2. Lake Elliott	9. Ungava Bay
3. Northspan	10. Timmins
4. Moake Lake	11. Grand Falls
5. Lynn Lake	12. Kitimat
6. Steep Rock Lake	13. Bathurst
7. Seven Isles	14. Pine Point
15. Sudbury	

**C-I-L. PLANTS AND OFFICES**

1. Vancouver	12. Copper Cliff	23. Hamilton
2. James Island	13. Timmins	24. London
3. Victoria	14. Sudbury	25. Chatham
4. Nelson	15. Kirkland Lake	26. Windsor
5. Calgary	16. Noranda	27. Millhaven
6. Edmonton	17. Bourlagnagne	28. Cornwall
7. Saskatoon	18. Nobel	29. Montreal
8. Regina	19. Brownsburg	30. Shawinigan Falls
9. Winnipeg	20. Ottawa	31. Quebec
10. Brainerd	21. Oshawa	32. Beloeil
11. Port Arthur	22. Toronto	33. Sherbrooke
34. Halifax	35. St. John's	

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C.I.L. explosives plant on James Island, between Vancouver Island and the British Columbia mainland. Explosives from this plant serve the mines, logging and hydro-electric developments of British Columbia and are also exported to Central and South America.

C.I.L. to erect a new hydrogen peroxide plant at Hamilton, Ontario. This plant is now under construction and will be in operation before the end of the year.

Another construction project is the ammonia plant at Millhaven on Lake Ontario. Here the necessary hydrogen gas for the production of ammonia is produced from oil instead of from coke and steam as hitherto at Billingham. This plant has just been completed. Ammonia is a chemical in increasing demand. It is used more and more by the pulp and paper industry; it is converted into nitric acid for the making of explosives; and it is needed in large quantities for fertilizers.

Fertilizers, in fact, are a big ammonia outlet. C.I.L. makes superphosphate at Beloeil near Montreal, where the business grew up many years ago utilising sulphuric acid available from the making of explosives. This in turn led C.I.L. into the compound fertilizer

business, a field in which they are now major suppliers in eastern Canada.

Apart from explosives (with its corollary, shotgun and rifle ammunition manufacture), heavy chemicals and fertilizers, C.I.L. has four other lines of business: paints, 'Fabrikoid' or leathercloth, polythene and 'Terylene.'

I visited York Works, one of the C.I.L. paint factories on the outskirts of Toronto, and I was also conducted over the research laboratories on the same site. This factory supplies a large part of the paint used by the Canadian automobile industry. The Canadian automobile industry is ahead of the U.S.A. in the enamelling of cars—a process which requires heat treatment or stoving. The result is a lasting finish similar to that on a refrigerator. It needs wash but not polish. C.I.L. recently came out with a new enamel finish, RL-100, a product of their own research laboratory. It has a higher gloss and is probably

ahead of anything else on the market today. This is no mean achievement.

Polythene and 'Terylene' are the two latest C.I.L. projects to go into production. Neither, in the words of the 1955 C.I.L. Annual Report, "has yet made a contribution to profits."

The polythene plant was sited at Edmonton to take advantage of Alberta's natural gas, from which the ethylene is made. The low cost of this raw material offsets the heavy freight charges which polythene made at Edmonton must bear before it can be sold in the principal Canadian markets of Ontario and Quebec, over 2000 miles away.

### More Polythene

Nevertheless no one in Canada seems to have any doubts about the growth of the polythene market. Not only is polythene used extensively as a packaging material for all kinds of goods, in wire and cable insulation, and in moulded toys and household articles, but it is being used more and more for cold water piping in farms, logging camps, mines and municipal services, replacing steel pipe. As sheeting it is competing with bitumenised paper as a moisture vapour barrier—an important outlet when you realise that no house is built nowadays in Canada without four layers of material (generally weatherboarding on the outside, inside that bitumenised paper or polythene sheeting, then fibreglass, and lastly plaster laid over wire netting. Polythene sheeting, too, takes the place of the construction shack. The builder who used to run up a temporary structure to cover his materials will today leave them in the open (cement bags and all) under a large polythene sheet.

### A Bold Decision

To introduce a new man-made fibre to the Canadian textile industry was a bold decision, and the 'Terylene' polyester fibre venture was launched in Canada with expectations of initial technical and marketing problems. Although conditions in the Canadian textile industry are improving slightly, textiles have not shared in the general buoyancy of the Canadian economy as a whole. In this semi-depressed state of affairs the textile mills have little money available for development; and a new fibre necessarily involves a great deal of experimentation and some equipment changes. The venture was, in short, a challenge to even the most progressive firms.

However, 'Terylene' is undoubtedly forging ahead.

Helped by vigorous advertising, it is becoming more and more widely known in Canada. In the United States the popularity of polyester fibre blended with cotton, wool and rayon is widespread. Canada will probably follow a similar trend once certain technical difficulties are overcome.

So much for a sketch of C.I.L.'s activities. Headquarters are in Montreal, where is found broadly speaking all management above works manager level, apart from sales organisation.

### The Nerve Centre

The Montreal offices are the nerve centre of 23 plants (three additional plants are under construction) strung out over almost 3500 miles from ocean to ocean. Leadership is in the hands of Mr. H. Greville Smith, the company's president, an impressive and vigorous personality, a one-time member of the Billingham Division of I.C.I., a chemist by training, and now a leading figure in Canadian business and a director of the Canadian Pacific Railway Company and of the Bank of Montreal.

Assisting him are four other directors. They are responsible for sales and personnel; production; finance; and research and development. To them respond eight general managers of operating divisions and twelve managers of service or staff departments.

It is a compact and efficient team. These executives have to do a great deal of travelling to keep abreast of affairs. When I talked to the president in Montreal I calculated that he had flown roughly 10,000 miles in the previous fortnight. He had just been to England and back and to Vancouver and back, with other local air journeys thrown in.

### Prospects Ahead

What are the prospects ahead of this company, with a turnover of about 120 million dollars (£40m.) and therefore about comparable in size to a major I.C.I. Division? In assessing them I think one should not lose sight of the following factors.

Firstly, the pace of the Canadian market is influenced considerably by the United States. By this I mean that U.S. sales methods, presentation and packaging techniques are essential to success. We in I.C.I., the parent company for whom C.I.L. handles a big export business in the more sophisticated chemicals for which the market is not yet large enough to justify local manufacture, are perhaps not always geared to these competitive disciplines. In Canada, as

(Continued on page 67)



# Vacation Course Student

SITTING across the desk from me is Peter Twist. At 20 he is facing his last two terms at University College, London. At the end of that time, all being well, he will graduate as a chemical engineer—and then, when the demands of national service have been met, he will have to think seriously about his future. It is more than possible that, as a result of a recent experience, he will apply for a job with I.C.I. That experience was his participation in a Vacation Scholarship Course at Billingham Division.

"Tell me," I said, "how did you become a member of this course?"

"I saw a notice about it on one of the department notice-boards," he told me. "A number of us were attracted by the idea, and applied for inclusion. In due course we were interviewed by an I.C.I. representative. I was lucky enough to be one of those selected."

"And what then?"

"Well, we fortunate ones—and there were chemists and physicists among us as well as engineers—were invited to become members of I.C.I. for eight weeks during the summer vacation. We were treated, I think, as 'apprentice technical officers,' paid a salary and living allowance—in fact, even our accommodation was found for us—and given the necessary travel warrants to get us to and from Billingham."

"It sounds to me as if you were well looked after. But what was the purpose of all this, anyway?"

"Oh, Billingham were perfectly frank about that, right from the start. The Education Officer told us in his introductory talk that I.C.I. wanted recruits from among young graduate scientists and engineers, and it was hoped that, after our first taste of large-scale chemical manufacture, we would like it sufficiently to want to make our careers in it. He also said that I.C.I. thought that courses such as this were a useful service to the universities."

As Peter Twist talked, my thoughts wandered for a moment over this problem of recruitment. The chemical industry, in common with many others these days, needs a continuous stream of highly skilled scientists and engineers if it is to do its job efficiently and progressively. There is by no means enough of such specialist manpower to meet the demand; and the competition for it

among big firms is intense. The old-fashioned techniques, such as "situations vacant" advertising, are no longer sufficient by themselves to fill all the vacancies that occur; and I.C.I. for a long time now has kept in very personal touch with the universities, and through them with those students who show in their work the sort of promise of future ability which the Company needs. The vacation courses which Billingham—and other I.C.I. Divisions—run are just an extension of this liaison.

"Now tell me," I said, "about this first taste of the chemical industry. What sort of work did you do on the course?"

"Right at the start," he answered, "we were given a list of actual works problems, and were invited to choose one which we would like to study. Some of these were very popular, and in the end the Company had to select the students for these itself; I chose one that I thought wouldn't be much in demand, quite deliberately, so that I could be fairly sure of doing it."

"Can you tell a layman what it was?"

"Not very easily. It was concerned with the carbon content of ash from the water-gas generator. However, I actually spent a good deal of my time on a simpler-sounding one, which was an investigation of the flow of coke in a bunker of a new design."

"Did you do anything else on the course but study problems of this kind?"

"Oh yes. On one half-day each week we had a lecture on one of the plants at Billingham, followed by a visit to the plant itself—and right at the beginning of the course there was an induction period of three days in which we were told about various aspects of I.C.I. and the way it works. We were kept pretty busy."

As we left my office to get some lunch I thought back nearly twenty years to my own beginnings. A trial run prior to accepting one's first appointment was unheard of in those days—yet it must be true that the man who bases his choice of a career on actual experience is more likely to remain happy in it than one who starts from scratch—and he who enjoys his work is good at it. This is perhaps one of the most valuable side-issues of vacation courses; could an extension of this kind of recruiting technique, into other walks of life than the purely technological, be the shape of things to come?

C.S.J.



Peter Twist



# Pigeons are Big Business

By Walter Boag (Nobel Division)

Every year more than two million pigeons are raced in Britain and more than £500,000 is won in prize money. A big race may be worth as much as £1000; and there is a complex but smooth-running organisation behind it all.

*Photographs from "Picture Post" Library*

"HAVE to make sure they get plenty of air," said the convoyer, easing the wicker baskets away from the walls of the swaying railway coach. They were ranged in tiers, a narrow separating corridor stretching waist high through the long goods van. Inside each about thirty racing pigeons strutted on fresh wood shavings, their soft tremolo voices adding a descant to the rhythmic beat of the wheels.

The birds belonged to members of the Ayrshire Racing Pigeon Federation. Ahead of them lay a 200-mile race back to their lofts from Preston. But before they reached the release point they would be assembled, deployed, and finally delivered in a large-scale manoeuvre that would bring together some five thousand of the Federation's best-fancied racing stock.

I tried to imagine what five thousand birds on the wing would look like as the man in charge of this pigeon convoy explained: "Of course, that's just the Ayrshire contingent. Renfrewshire and other West of Scotland federations will probably be there too."

This picture seemed impossible to encompass, even in Cinemascope. But for the fancier there is nothing exceptional in mammoth assemblies of this kind. They are weekly events which, during the five-month racing season, time and usage have accustomed him to look

on as being in the natural order of things. They are as inseparable from his sporting way of life as a Saturday afternoon on the terracing for the football fan.

But what of the organisation behind them? Where is the G.H.Q. at which these mass pigeon movements are plotted?

On nationalisation British Railways inherited a tradition—a tradition built up over the years by the private companies. It was that, within the framework of their existing schedules, they supply special trains to meet the requirements of pigeon racing. For while increased use is being made of air transport to the more distant race points, it is only with the carefully timed co-operation of the railways that pigeon racing can function smoothly as one of the country's most popular sports.

Most popular sports? I looked across at the convoyer in his railway guard's seat, the question hanging unspoken on the few feet of air between us.

"Have you any idea how many pigeon fanciers there are in Britain?" he said. "Something like 150,000 it was reckoned a year or two ago. Give each a loft of say thirty or forty birds—would you still keep pigeon racing out of the popular class?"

The permutations seemed endless. I decided to



*The start of a race. After an all-night journey, 10,000 pigeons take off for home.*



throw out an anchor before foundering in a sea of statistics.

"But they never compete in the same race?"

"No; Scotland, England, Wales and Ireland have their own national races to the Channel Islands and the Continent two or three times a year. But don't forget that it is the weekly federation events that are the backbone of pigeon racing. And a fancier is consistent. He rarely misses a race."

Rarely misses a race . . . The wheels seemed to take up the rhythm of the words as I tried to think what they could mean—special coaches becoming special trains as they gathered at main line collecting stations; the journey—always by night—to the race point; the wait in a siding there until time or the weather made the release possible. And this happening every week-end during the season in pigeon-fancying districts all over the country.

A lot of pigeons: a lot of trains. A massive operation demanding the fullest co-operation of all concerned. It begins in the spring of the year, when all over the country racing pigeon federations meet to compile their programmes for the coming season. British Railways do the rest. They piece together the details of each federation's requirements until an exact picture of the season's pigeon racing is complete.

The final stage in a process that begins in the district manager's office and ends at regional level is the timing of the trains. When this has been done the federations are informed. The pigeon-racing season is on.

The signs are few but easily recognised. Neat stacks of wicker hampers on railway platforms: the fancier's Friday evening trek to the station, his hopes for the club sweepstake or greater honours contained in a small portable basket.

These baskets—big enough to carry three or four birds in comfort—usually conform to a pattern, but occasionally the less orthodox "custom-built" model makes an appearance.

At the station the formal machinery of the sport takes over. The birds are transferred to the large, regulation-size Federation panniers in which they must travel to the race point. These are sealed, weighed, and finally loaded into the special coach that will take them on the first stage of the journey to the race point.

It is here that they become the responsibility of the convoyer. He is an expenses-paid official who has been voted into office by his fellow members of the federation. Generally he has an assistant, whose appointment is also the subject of a federation vote.

Apart from being an enthusiast—a talent shared by all pigeon fanciers in any case—the chief qualification of a convoyer is to be able to stay awake for anything up to four days on end. At least, so it seemed to me after meeting the Ayrshire Federation's convoyer to Preston.

It was, he said, his last race of the season. Every Friday for the past eighteen weeks he had chaperoned several thousand pigeons to race points in the Scottish borders or into the north of England. They had to have constant attention while in transit, which invariably meant a sleepless Friday night. Sometimes he was not in bed the following night either.

"It depends entirely on the weather. If it isn't good enough for the release we have to hold them over until it is—and that can mean anything up to four days. This doesn't happen very often, but when we went to Dumfries in August they had to be kept out of the air until the Tuesday."

As long as the hold-over lasts, the convoyer stays with his pigeons. Through the wide mesh of the baskets he keeps a watchful eye on them. For sometimes in pre-race excitement—"they know what's happening just as well as we do"—there is a ruffling of feathers among the young cocks. It is up to the convoyer to make sure that none of them gets seriously hurt.

"We also have to watch that they are all wearing their rubber leg rings. I've had to re-ring a whole club's entries just because one bird had lost his."

This is all-important. For unless a pigeon is wearing this ring when it enters the home loft its time of arrival cannot be recorded. When as much as £1000 can hinge on a race timed in thousandths of a yard a minute, the convoyer must always be on the alert.

The birds are clocked into their lofts by dropping the rubber rings into special pigeon timers. These are synchronised with a master kept by the club secretary. With a loft's distance from each race point having been officially surveyed in miles and yards, precise calculations are possible.

But the rubber ring does not often go adrift. And the young cocks rarely have a set to. The convoyer's most constant job during the journey is to keep the water troughs filled. These are specially made to hook on to the grille at the front of the panniers. To have a drink a bird has simply to push his head between the spars.

"You see, although we always carry peas in bulk,

before a race they are never fed, only watered." And, pointing to a bulging canvas bag on the floor: "These are only in case of a long hold-over."

I assumed they put up their best performances on empty stomachs, but the convoyer supplied the real answer.

"They want food, and the only place they know they will get it is at their home loft. So they make for it as quickly as possible." A pigeon could exist quite comfortably for two or three days without food, he added, topping up the troughs from a large red can, "but they must have water."

"The only time they may shy from the drinking trough is if they're making their first race as young birds. But then we rattle a few peas in it. That brings them out quickly enough."

Young pigeons go into race training at four weeks old. For three weeks they have been wearing the metal leg ring that has given them their identity. These are issued annually by the various national associations and carry the association's distinguishing letters—such as S.U.R.A.P. or N.U.R.P.—a number and the year.

In training the birds are taught to enter the loft by the trap, given short exercise flights, introduced to the basket. One thing they need not be taught is how to find their way home. This is a timeless secret man has not yet managed to acquire.

About two weeks before the first race in July—when the birds are three or four months old—they go on their first train journey. This is to give them a trial flight, generally of about 40 miles. It will be from a town in direct line with the route they will be expected to take when racing.

It is the only time they travel without an official



*Each pigeon carries a numbered ring fixed to its leg before despatch to the starting point. When the pigeon gets back to its loft, the ring is taken off and dropped into a slot in a special clock which then automatically records the bird's time of arrival.*

escort. For on the label fixed to the basket is a request to the stationmaster at their destination to liberate them. He is also asked to record on the label the state of the weather and time of release.

This is another link in the traditional association between the fancier and the railway authorities. Stationmasters' offices on the race route also supply the convoyers with weather reports.

"Now we can get weather forecasts from airfields, but the stationmaster's report—compiled from signal box messages along the route—is still most important."

The convoyer turned again to watch the slightly swaying baskets. But this time he had a more thoughtful look. Perhaps he might be watching over a future champion—a bird that could break the established record of 97 m.p.h. I wondered. Suddenly he stood up, easing his collar away from his neck. "It's very warm here. I think I'll open a few windows. If we're feeling the heat you can be sure they are too."



# Garden Notes

By Philip Harvey



**P**EACH trees, whether grown on a wall or right out in the open, are very liable to Leaf Curl. This fungus disease is very easy to identify and fortunately equally easy to master, provided preventive spraying is undertaken at the correct time.

Signs of infection first appear as the leaves unfold. Attacked leaves are thickened and puckered with characteristic downward curls and purplish-red colouring. They are eventually killed and fall to the ground. The fungus also penetrates to the young shoots, but flowers and fruits are rarely infected.

A cold, wet February encourages attacks, and if they are allowed to develop unchecked the tree is weakened, with an inevitable reduction in both quality and quantity of the crop.

Removing infected leaves and shoots obviously helps to arrest the trouble, but as with other fungus diseases like Rose Black Spot and Powdery Mildew, it is very much a partial deterrent. The best remedy is to spray with a suitable fungicide immediately before the buds begin to swell, generally during the second half of February. Bordeaux mixture, lime sulphur or a proprietary copper fungicide are all effective.

Amateurs are often uncertain about the manuring of fruit trees and bushes. It is important to understand individual likes and dislikes. For example, black currants and plums demand plenty of nitrogen. Black currants are very partial to pig manure. They also appreciate a dressing of 'Nitro-Chalk' in

February or early March; a second application may be given after the crop has been picked. Plums also respond to 'Nitro-Chalk' applied in February, with a further dressing after the fruit has set.

**R**ed and white currants do not require heavy dressings of farmyard manure, but they are very susceptible to potash deficiency. Sulphate of potash or bonfire ashes may be applied during the winter months. A February or March dressing of any complete fertilizer with a high potash content is also beneficial. Gooseberries are equally susceptible to potash deficiency. A typical symptom is brown or greyish scorching on the edge of the leaves, which are often bluish green. Growth is stunted, with dieback of the branches, and the crop is considerably reduced. Incidentally, leaf scorch rarely occurs on fruit trees growing in grass. Apples and raspberries can also show signs of potash shortage, especially on light soils.

Raspberries must have well-drained soil. Obviously sound drainage is desirable for all fruits—and most other garden plants, for that matter—but I must admit I had not fully realised the importance of this factor. When I started to make my new garden nearly three years ago, young canes of Malling Exploit were planted in a patch of deep, heavy soil with good moisture-holding capacity. Unfortunately these advantages were neutralised by the poor drainage, a drawback



Illustrated by Susan Einzig

I should have discovered and attempted to remedy before planting. I must plead in justification that spring had arrived, immediate planting of both raspberries and other subjects being essential. Anyway, these raspberries have never made really vigorous growth, and I shall have to make a fresh planting from the suckers which have fortunately sprung up fairly freely between the rows. I should add that in my previous garden, where the soil was less fertile and dried out fairly easily (drainage being perfect), plants of Malling Promise went ahead like wildfire.

Sound drainage is particularly important with all types of carnations and pinks. A raised-up bed is often advisable on heavy soils. Other essentials are an open, sunny position away from overhanging trees and firm planting. In theory you can plant any time between September and May, but on light soils early autumn is probably best. On heavy land late February to early April is to be preferred.

**S**ome gardeners are unlucky with border carnations in the open, as in certain districts these plants (and in particular the yellow varieties) tend to die off in a severe winter, especially on heavy ground. The cottage varieties are, however, much less fickle and should be grown more widely.

The great advantage of these carnations, which were first introduced in the 1930s, is

their toughness. They are, in fact, extra hardy and will tolerate temperatures down to zero. The habit is more compact than with the border varieties, and normal staking is unnecessary. Beech twigs or short pea sticks are, however, advisable to stop drifting in the wind. In my experience they seem to have a rather longer period of flowering than the border kinds. The individual blooms are admittedly smaller and lack to some extent the symmetrical form which appeals to the exhibitor; but does this really matter?

**T**o my tobacco-deadened senses very few cottage varieties are noticeably fragrant. (Cottage White and Cottage Crimson are, however, exceptions.) Varieties that have done especially well with me include Cottage Quaker (white, with deep salmon flakes), Cottage Gem (blush white flecked crimson, and exceptionally free-flowering), and Cottage Orange (a warm apricot-orange).

When it comes to pinks, most gardeners seem to begin and end with the white Mrs. Sinkins, which is frequently used as an edging. There is, however, no excuse for the leggy plants one often sees. Pinks should be split up every two or three years to prevent this. White Ladies is preferred by some for edging, as it is less prone to split the calyx. Among the newer varieties, Dusky is an attractive rose-pink with a fine scent and a longer flowering period than Mrs. Sinkins or White Ladies. It does very well on my heavy soil.





# Canadian Boom

By the Editor

The Canadian boom is something almost taken for granted nowadays. What is it that makes Canada a "growth country"? And how does the chemical industry fit into the growth picture?

Two days after arrival in Montreal I was taken to visit one of Canada's best-known geological consultants. His name was Dr. Retty. The scene was a little office tucked away at the top of an old building in Montreal's downtown business centre. The two of us crowded into a room in which papers, maps and charts jostled with each other for a place. Sitting at his desk behind the debris was a cheerful, rubicund man in his middle forties. Behind him there hung a large geological map of Canada.

Introductions completed, Dr. Retty talked. On the map behind him, with a fine disregard for other interests, he traced in red crayon the mineral developments now taking place in Canada. He told the story of how the mountains stretching away up as far as the Arctic circle and so often accessible only by aeroplane are yielding up their mineral wealth to large capital investment, most of it from the United States.

"Nothing," said Dr. Retty, "nothing can stop Canada from becoming in a few years the biggest mining country in the world."

There is perhaps a pardonable touch of exaggeration behind this statement. The "few years" are maybe twenty years, and how would you judge the biggest mining country in the world, anyway? By volume, including coal? By value? By total capital investment? By output per head of population? Suffice to say that the mineral wealth of Canada is very large indeed—how large no one yet knows—and its increasingly rapid exploitation dominates today the economic development of a unique country.

What is Canada? It is a nation of just under 16,000,000 people, 62% of whom live in the eastern provinces of Quebec and Ontario where 85% of the industry is situated and where the two largest cities

in Canada, Montreal and Toronto, jointly embrace over 2,500,000 inhabitants. It is a nation stretched out in a thin line of endeavour reaching 3500 miles from the Atlantic to the Pacific. Yet geographically Canada is even larger than the United States. Today there is a melt-away of population from the country to the towns—a trend accelerated by mechanisation—and the largest section of the community is no longer the farmers. Faced with a harsh climate and a long winter of snow, fresh blood is not easily introduced to the land, and it is not to the farmers that Canada today looks for the creation of new wealth.

Instead, for the last decade or more Canadian expansion has been borne steadily upwards, one might almost say dramatically upwards, by the soaring economy of her great neighbour below the border. There in the United States 168,000,000 people (over ten times the number in Canada) have added 60% to their wealth since 1939.\* Canada has done the same or better. She has done it largely in response to the great burgeoning of the American economy, in response to that country's demand for further raw materials to feed production.

The broad lines of Canadian expansion are not difficult to trace. Pride of place should be given to the impact of American demand on the Canadian

\*This figure is based on per capita gross national product in constant dollars, 1939 to 1955.



Steelworks of the Algoma Steel Company at Sault Ste. Marie, near Lake Superior

paper and pulp industry—an old-established industry and one only just overtaken by mining in terms of annual value of production.

Paper, pulp, plywood and lumber account for about 10% of Canada's wealth. Huge new mills have been erected to convert the forest trees. This has been in response to world demand, but primarily American and primarily for advertising purposes. No visitor to the North American continent could fail to be staggered by the sheer bulk of his daily newspaper. It is a noticeable weight to carry around with you, and most of it is advertising space. Just how important the pulp, paper, lumber and plywood business is for Canadians can be gauged by the fact that out of every dollar earned in British Columbia 35 cents (it has been calculated) is attributable to it.

However that may be, minerals and oil are the two really exciting things in Canada. The interest taken by Canadians in their country's mineral wealth is almost a personal one. Most people you meet seem

to have a share interest in some mine or other. The man with the geiger counter has taken the place of the gold prospector of the old days.

More scientifically, a British company, Hunter Aircraft Ltd., has made a name for itself as a contractor in magnetometer survey, flying aircraft methodically across the inaccessible mountainous bush country in the pre-Cambrian shield (the oldest rock outcrop in the world) and taking tell-tale magnetic readings which indicate mineral deposits below ground. This sort of work has gone on on a spectacular scale. The president of one well-known copper mining company in British Columbia told me that his firm had on their books no fewer than 28,000 unprofitable projects, all of which had taken time and money to investigate. The failures may be many, but the rewards of success are glittering.

It is only three years ago (so the story goes) that a certain geologist walked into the Toronto office of one Joseph H. Hirshhorn and said that he was convinced





*Sawmill at Port Alberni on Vancouver Island. Logs are floated down the Fraser River and towed as rafts across Georgia Strait.*

that some bush country to the north of Lake Huron in Ontario had uranium possibilities. \$30,000 was the sum needed to test this belief by diamond drilling. Joe Hirshhorn took the gamble. One morning a plane took off from the not too distant gold mining town of Timmins, headed east in order to allay suspicion, and then turned south-west into the now famous Blind River country, landing on Lake Elliot. That day Joe Hirshhorn and his associates staked their claims. Later diamond drilling was begun, uncovering a huge uranium vein from 300 to 2000 feet below the surface, 1000 to 1200 feet wide and 10 to 20 feet deep.

Today Lake Elliot is the centre of a new uranium industry in which over two hundred million dollars are being invested. The ore is not rich—0.1% uranium—but it is there in very large quantities and separated by only some tens of miles from the Great Lakes waterways system, and by only some tens of

miles, too, from one of the two railways that run across Canada.

The new mines are racing against time to be in production by September 1957. If they succeed, they then qualify for a special five-year price contract offered by the United States. America will buy uranium at a price calculated to repay by 1962 the entire capital cost of the mines and leave a reasonable margin of profit.

Under the impetus of this reward the Blind River country is being peppered with mine shafts where there was not a road or even a track three years ago. The largest group of mines, Northspan (financed by Rio Tinto, the well-known British mining company), will be capable of milling the huge quantity of 9000 tons of ore a day. The uranium concentrate is extracted from the ore in a solution of sulphuric acid—very large quantities indeed of sulphuric are used—and the concentrate is then shipped to Port Hope on Lake



*Oil gusher amid prairie wheat fields near Edmonton. Oil and natural gas have been found in large quantities in Alberta. C.I.L. has erected a plant to make polythene from natural gas at Edmonton, capital of Alberta.*

Ontario to be refined by Eldorado, the Government company which handles all uranium sales.

The uranium story is only one of several gigantic mining ventures. There is the story of the International Nickel Company, producer of 65% of the world's nickel and about to undertake another huge nickel development at Moak Lake in Manitoba. There is the story of the Sherritt-Gordon Company which moved on skids in the winter the houses of an entire mining community—moved them from their worn-out mine site at Sherridon to a new nickel mine at Lynn Lake, 130 miles to the north.

One cannot begin to list here the mines of Canada or their potentialities, but mention must be made of certain things. Most important is the increasing dependence of the U.S. steel industry on Canadian iron ore. During the war an entire lake—Steep Rock Lake, 18 miles long—was drained of water and the iron ore uncovered from the lake bed by opencast

operations. Thence it was, and still is, transported across the Great Lakes to feed the steel furnaces of Chicago, Cleveland and Pittsburgh.

Post-war an even more spectacular iron ore development took place. From Seven Islands at the mouth of the St. Lawrence River a railway was built 300 miles north into Labrador to reach the iron ore deposits at Knob Lake. The manpower, the materials and the machines were nearly all flown in. Until the railway was built no other means of transport was possible.

Today from Knob Lake iron ore is despatched by rail to the St. Lawrence and thence by boat to Chicago, Cleveland and Pittsburgh at the rate of ten million tons a year. It is a stupendous operation. Perhaps even more imaginative is another iron ore development planned by the man who financed the Steep Rock Lake Scheme—Cyrus Eaton, a Canadian-born American industrialist. This scheme is to exploit the iron ore deposits to the north of Labrador close to





*River transport is a vital link in the resources of northern Canada. This tug is taking a barge down the Athabasca River, the river which connects the rest of Canada with Lake Athabasca and Uranium City.*

Ungava Bay and to move this iron ore through the Hudson Strait during the four months of the year when it is unfrozen and stockpile the ore in Greenland for supply to the steel mills of Europe. Yet another scheme (with U.S. Steel capital behind it) is to develop deposits to the south-west of Knob Lake at Mount Wright and build a 200-mile railway from there to Shelter Bay on the St. Lawrence.

Lead-zinc mining is another sphere in which spectacular developments are possible. There are very large and rich lead-zinc ore bodies in New Brunswick near Bathurst. Technical problems of metallurgical extraction have hitherto delayed development. Another big lead-zinc ore body awaiting development is at Pine Point, near Great Slave Lake, in the North-West territories. Here progress depends on building a rail connection through the mountains from the nearest railway point some 250 miles to the south.

Next to minerals in significance come the oil and

natural gas discoveries in the Province of Alberta. As yet the Alberta oilfields are only on the fringe of development, and the problem is not so much one of producing the oil as of finding a market. This is a costly matter. A pipeline (1760 miles long, the longest oil pipeline in the world) has been constructed to the refineries at Sarnia near Lake Huron, and another to Vancouver. The former taps the Ontario market, and feeder pipelines run off to certain northern U.S. refineries as well. The burning question in Canada is the extension of this pipeline a further 500 miles to Montreal, where Alberta oil would meet the full blast of competition with Venezuelan and Middle East crude. Montreal can give Alberta oil a big market, but probably only at the cost of a lower wellhead price.

Natural gas is also in Alberta in very large quantities indeed. The gas is being piped to Vancouver and also 2200 miles across Canada to Montreal, taking a long and expensive route to the north of the Great



*Work in progress on the big dam at the foot of the International Rapids Section on the St. Lawrence River. This dam provides water to develop two million horse-power of electricity and at the same time will so raise the level of the St. Lawrence River in this section as to make it navigable for ocean-going ships. Via the St. Lawrence and the Great Lakes, ocean-going ships will one day be able to travel 2260 miles into the heart of North America.*

Lakes and thereby (unlike the oil pipeline) avoiding crossing the border into the United States. This extremely costly capital investment—some \$300,000,000—has been a lively political issue in Ottawa.

Finally, mention must be made of Canadian hydro power, a major and still only half-developed natural resource. In Ontario all available hydro power will have been harnessed once the St. Lawrence River power project is completed. But in Quebec and British Columbia there are still huge reserves. At Grand Falls on the Hamilton River in Labrador a British group have plans to harness these falls and develop the enormous quantity of four million horsepower. But where would the market be? It used to be considered uneconomic to carry electric power more than 200 miles. Above this limit the loss was too great. But recently this calculation has been

revised. At extremely high voltages, of the order of 500,000 volts, energy can now, it is thought, be transported economically up to 700 miles. This opens up the possibility of feeding the Hamilton Falls power into the Ontario grid system or possibly under the St. Lawrence river into New Brunswick to feed the nascent zinc mining and smelting there.

In British Columbia the reserves of hydro power are even larger. Not long ago they were developed in dramatic fashion to make aluminium at Kitimat (the raw material is brought all the way by sea from Jamaica). The natural flow of rivers was reversed and a ten-mile tunnel driven through the mountain to Kemano, where a 2000-foot fall of water is harnessed. More recently, a project to develop hydro power from the Columbia River came under discussion and is the subject of negotiation with the United States.



# NEWS IN PICTURES



**Home for Christmas.** Sixty-six employees of Suez Contractors (Ammunition) Ltd., released from internment in Cairo, arrived back in this country in time for Christmas (see p. 65). Above: Sir John Duncanson, chairman of the contracting firms' governing body, greets Mr. L. Watkins and Mr. A. D. Thomas. Left: Alighting from the bus in London after the air journey from Cyprus is Mr. S. Barratt



**Best apprentice of the year at Blackley Works,** David Spurgeon, received a set of drawing instruments from Mr. P. K. Standring, I.C.I. Director for Dyestuffs and Pharmaceuticals Divisions



**High test and high jinks.** H.M. submarine Excalibur (above, left) is the latest recruit to 'Terylene' users. She is propelled by high test peroxide, and to withstand this powerful substance 'Terylene' was chosen as the base fabric for fuelling hoses and gaskets; engine-room personnel use 'Terylene' singlets and overalls. Below: 200 yards of 'Terylene' net is used in the Crazy Gang Show "These Foolish Kings" for showgirls' frilly petticoats and dresses. In another scene chorus men and girls wear 'Terylene' suits



**Bicentenary medal of Royal Society of Arts** was awarded to Mr. W. J. Worboys, I.C.I. Commercial Director, seen here receiving it from Dr. R. W. Holland, chairman of the R.S.A. Council. The award was for outstanding services to industrial design







**Mr. Maldwyn Jones**, appointed *Plastics Division Development Director*, worked in *Dyestuffs Division* for 14 years and *Southern Region* before joining the Division as *Technical Service and Development Manager* in 1945



**Mr. H. C. Raine** has been appointed *Research Director of Plastics Division*. He joined *Alkali Division* in 1939, went to *Plastics Division* four years later and was appointed *Deputy Research Manager of the Division* in 1954



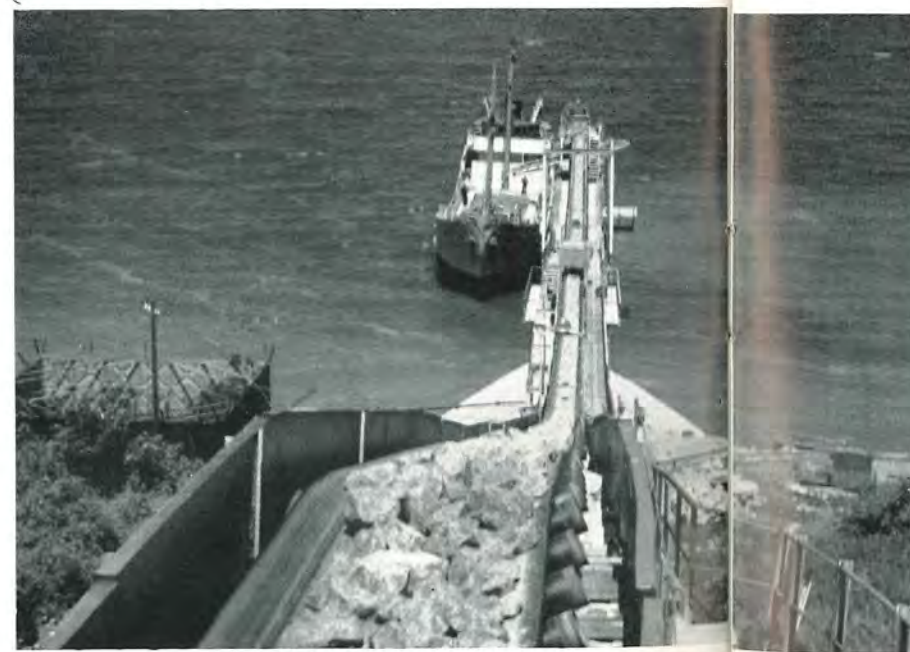
**Miss Mary Nunn**, typist at *Castner-Kellner Works*, has been appointed the first female civilian instructor in the *Air Training Corps*. She teaches administration and organisation in the *Runcorn squadron*



**Mrs. Margaret Wall** is the first woman to become a works councillor at *Wilton* and the first woman to have sought election. She is an assistant cook at the *Castle Canteen*



**"Lady Dorothy,"** one of the ships used by *Nobel Division* for bulk transport of explosives in British waters, has gone to the breakers' yard owing to an age of forty. The last steam-driven vessel in the Division's fleet, she will be replaced by a new diesel ship built by *Androssan Dockyard Co.* The Division's other ships are "*Lady Anstruther*," Swedish built and bought to replace the previous "*Lady McGowan*," built by *Scott & Sons, Bowling*, in 1952



**"The Limestone Run"** is the title of a new *I.C.I.* film which traces the journey of limestone from *Lime Division's Raynes Quarry* in North Wales to the *Alkali Division*. Picture above, taken from the film, shows the m.v. *Thorium* loading 600 tons of limestone at the quarry's own jetty



**Off to the Himalayas** in the spring is *Mr. John Fletcher*, a *Billingham chemist* who has been granted leave of absence to accompany the *Yorkshire Himalayan Expedition* to the *Parbati district* of the *Punjab*, where they hope to climb a 24,000 ft. mountain



**Mr. J. Mackerill**, *General Chemicals Division pensioner*, received the *O.B.E.* in the *New Year Honours* for his *National Savings* work. He has been chairman of *Runcorn Industrial Savings Committee* for the last six years



**Mr. K. H. Lauder**, patent officer in the *Research Department of Nobel Division*, received the *O.B.E.* in the *New Year Honours* for his work as a scientific attaché at *H.M. Embassy in Bonn*



**Aerosol pack for 'Belco' Spraying Touch-in Black** is new line for *Paints Division*. Designed for car owners to touch in minor damage, it is distributed solely by *Brown Brothers Ltd.* and *Thomson and Brown Brothers Ltd.*



# PICTURES FROM OVERSEAS

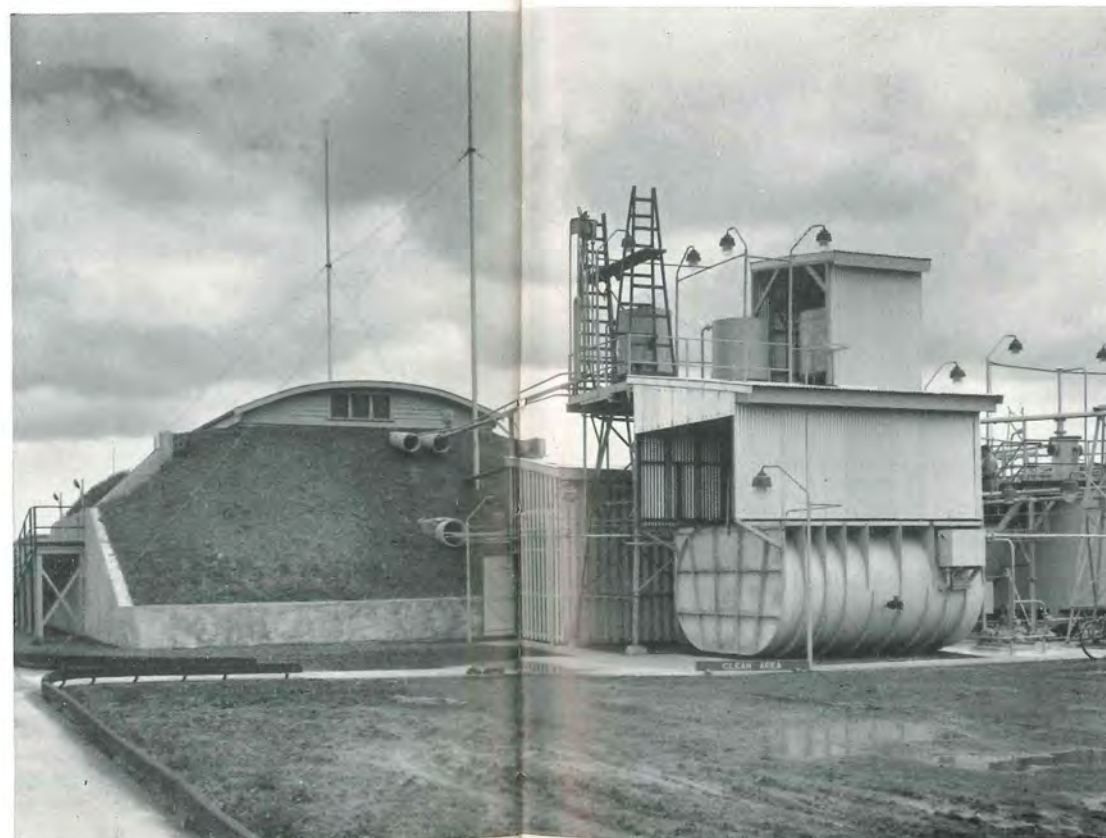


**Malaya.** At the Malayan Agri-Horticultural Association's annual exhibition a "man" made from 'Alkathene' water piping caught the attention of Tengku Abdul Rahman, Chief Minister of the Federation of Malaya. With him on the I.C.I. stand is Dr. C. B. Taylor, head of I.C.I. Malaya's agricultural advisory department. On the right is Inche Abdul Aziz bin Ishak, Minister of Agriculture

**Burma.** Explosives from I.C.I. (Export) Ltd., Rangoon, are sent by aircraft on their 300-mile journey to the tin mines of Tavoy in southern Burma



**Australia.** The Central Research Laboratories of I.C.I.A.N.Z. in Melbourne, recently opened by the Prime Minister, Mr. Menzies, combine functional planning with clean, modern lines. The administration block, shown above, constitutes the head of a T; the other wing houses the laboratories



**Australia.** A view of the newly built Biazzini nitroglycerine plant now being operated by I.C.I.A.N.Z. at Deer Park, Victoria. I.C.I.A.N.Z. technicians visited I.C.I.'s Biazzini plant at Ardeer to gain experience



**Spain.** Long service awards were presented recently to members of S.A. Azamón's Lightning Fastener Factory at Rubi. (Top) Mr. P. C. Allen, I.C.I. Fibres Group Director, and Mrs. Allen talk to a former employee who retired after 28 years' service. (Below) Sr. Ros, manager of the factory, sees Sr. Seriol receiving his 20 years' service watch



**Argentina.** Mr. John McLennan (standing), traffic manager of Duperial Argentina, presided at the annual dinner of the St. Andrew's Society of the River Plate. Heading the list of distinguished guests was Rear Admiral Isaac F. Rojas (second from right), vice-president of Argentina



# I.C.I. NEWS

## BIG SUCCESS FOR NEW ISSUE

THE new I.C.I. loan stock was subscribed almost six times, it was announced after the closing date for applications. Nearly 68,000 of the 315,000 stockholders applied for the new stock, and since 10% of the issue price was payable on application they sent in some £24 million, at a time of year when there are many claims on the

pocket. (The last new I.C.I. issue, of £30 million loan stock in 1954, was oversubscribed ten times; the one before, for £20 million in 1952, was oversubscribed by 1½ million shares.)

The startling success of the new issue brought its problems. One was the decision as to what proportion of the stock he had asked for each applicant should receive. To enable the Board to formulate a fair scheme of allotment the I.C.I. Registrar's Department had the gargantuan task of preparing an analysis of the applications, showing the number of applicants for any quantity of stock, between 3 p.m. one day and 10 a.m. the next. When the Board announced the allotments it was revealed that the smaller applicant had been favoured, receiving the full amount of stock he had applied for if it was £200 or less, while the larger applicants were allotted one-eighth of the amount applied for.

Letters were sent to each of the 68,000 applicants, telling them how many shares they had been allocated and returning if necessary part of their money. Applicants then had to return their allotment letters to one of the Company's seven bankers, this time enclosing the second instalment due on the shares allotted them. With the second payments to the banks came the particulars about the purchasers, which had to be entered in the Company's Register of Members. These particulars also enable the new stock certificates to be prepared and signed. Not until these are in the post will the biggest financing operation in the history of the City have been completed. But the Registrar's Department will not have finished: on 1st July they must distribute the first interest payment to the stockholders who will be registered in May, and will then count the moments until the first conversion date twelve months later.

### NEW DEPUTY CHAIRMAN

Dr. R. Holroyd, I.C.I. Research Director, has been elected a Deputy Chairman of the Board in the place of Mr. A. J. Quig, who retired on 31st December.

Dr. Holroyd was appointed to the Board in November 1952 and collaborated with the late Sir Wallace Akers until the latter's retirement in April 1953, when Dr. Holroyd was appointed Research Director.

### WHAT THE NEWSPAPERS SAID

**I.C.I. Score is £240 Million.** What a wonderful success for I.C.I. boss Sir Alexander Fleck. For that £240 million was offered despite the Government's credit squeeze—designed to make money-raising difficult. Proves this much. If you run a sound business and offer a fair return to the folks who back you with cash, you will never go short of money.—*Daily Express*.

**I.C.I. Rush for Lolly.** In anticipation of big profits to come the shareholders of Imperial Chemical Industries have oversubscribed a £40 million 5½% convertible stock issue.—*Daily Worker*.

**Cascade of Lolly for I.C.I.** So Britain's biggest industrial company has met with a huge success for its biggest-ever issue.—*Daily Sketch*.

**Six Times £40 million.** The success of the I.C.I. £40m. issue turns out to have been even more resounding than the most optimistic of market estimates.—*The Times*.

**£230 Million for I.C.I. Loan.** It is a remarkable result considering the difficult times. Total money put up exceeds the £187 million for £20 million of Imperial Tobacco Co. loan stock issued in the 1954 boom times.—*Daily Herald*.

**Big Borrowers.** The simplicity with which this giant can raise money is in striking contrast to the difficulties facing local authorities when they want to borrow even £1 million from City financiers.—*The Tribune*.



Dr. R. Holroyd

He joined I.C.I. at Winnington in 1928. He is a recognised authority on coal-oil research, and during his time at Billingham, from 1930 to 1952, he was closely associated with the development of the Oil Works. He became Billingham Division Research Director in 1947.

Dr. Holroyd served for three years on the Fuel Research Board of the Department of Scientific and Industrial Research and since 1954 has been chairman of D.S.I.R.'s Food Investigation Board. He is a member of the Colonial Products Council, the Science Museum Advisory Council, the Central Advisory Council for Education (England) and of many scientific learned societies. One of his spare-time interests is the study of local history.

### SUEZ MEN HOME

The 66 members of Suez Contractors (Ammunition) Ltd. who were arrested in the Canal Zone on 31st October and interned in Cairo all arrived back in this country safely for Christmas. Their wives and families preceded them last August.

The 66, who included a number of seconded I.C.I. men, had spent seven weeks in the internment camp when they were released on 20th December. They gave grim accounts of their living conditions, particularly of the food and sanitary conditions, but happily they suffered no epidemic or serious illness.

All of them praised the untiring efforts of Mr. C. E. Dardier, general manager of Suez Contractors (Ammunition) Ltd. and formerly on the staff of Metals Division's Summerfield Research Station, to improve their conditions in Cairo. Mr. Dardier himself described conditions as "unpleasant rather than actually bad." He was arrested in the middle of the night, and the only personal possession he was allowed to take with him was a fountain pen.

Arrangements for receiving the repatriated men and getting them to their homes in time for Christmas were

made by the Wimpey organisation on behalf of the seven Suez contracting companies.

Plans for the reception of the internees in London were laid as early as the beginning of December, when it was first rumoured that the men might be released. One hundred hotel rooms were booked in London and held until the internees actually arrived. Aircraft bringing them from Cyprus began to arrive on 23rd December, and from then until late on Christmas Eve reception arrangements at the headquarters hotel, including medical services, a cash desk, a clothing shop and a travel information bureau, were working at full pressure.

Dr. James Taylor (I.C.I. Group Director for Metals and Nobel Divisions) and Mr. W. Robson (chairman of Suez Contractors (Ammunition) Ltd.) were on hand to greet the first arrivals at 5.30 a.m. on 23rd December. (Pictures on page 58.)

### I.C.I. LAND PURCHASE

I.C.I. has negotiated the purchase of the bulk of Sir Richard Brooke's Norton Estate in Cheshire. The estate, which amounts to more than 1000 acres, lies between Runcorn and Stockton Heath.

It was stated last month that the Company does not intend to develop the land immediately, but has in mind a long-term scheme of industrial development.

### BILLINGHAM DIVISION

#### Cheque for Invention

For an invention which has proved its worth "a hundred million times" and is now accepted as standard by all the Divisions of the Company, Mr. Roy Parkin, Electrical Foreman in the Nitrates Section of Products Works at Billingham, has been given a substantial award by the Company.

His invention is a rotation sensing device—an electrical unit used to give warning when rotary machines such as reaction vessels and driers slow down or stop. The first one was installed three years ago in the Phosphate Plant at Billingham.



Mr. Roy Parkin (left) receives a cheque from Mr. E. A. Blench, Division Production Director



Mr. Parkin's idea has since been developed by I.C.I. and a firm of electrical manufacturers who are marketing it. The device can be used in band conveyor systems so that a stoppage of any conveyor can shut down all the preceding conveyors in the series to prevent material spilling.

## FIBRES DIVISION

### 'Terylene' Plant Extensions

The production of 'Terylene' is to be increased by 8 million pounds a year to 30 million pounds a year by extending sections of the plant at Wilton Works. Work will begin this spring, and additional quantities of 'Terylene' will become available early in 1959. The new plant will bring the total Company investment in the production of 'Terylene' to about £28 million.

It is now six years since the Company decided to go ahead with full-scale production of 'Terylene.' The first plant, with capacity of 11 million pounds a year, began production early in 1955. The second plant, with the same capacity, came into operation last summer.

## GENERAL CHEMICALS DIVISION

### 51 Years of Office Cleaning

In 1905 Miss Margaret Eccleston began work for the United Alkali Co. as an office cleaner, working under her



Mrs. M. Histon

mother at the Golding Davis works. In 1915 Mrs. Eccleston and her daughter moved into the house known as Marsh Lodge, which is attached to Marsh offices, and Mrs. Eccleston continued as office cleaner at Marsh Works. Maggie, as she was always known, acted as a waitress until she was married and became Mrs. Histon; with her sister she then continued as an office cleaner, but for many years carried on supplying occasional meals to the staff.

There are many people who will remember, now that Mrs. Histon has retired after 51 years' service, the meals provided by Maggie when they have been kept late at Marsh Works—and not only the meals, but the kindness and the smile with which they were presented.

## METALS DIVISION

### Idea wins Money

An idea proposed by Mr. G. J. Dale, a toolsetter at the Witton factory of Lightning Fasteners Ltd., won him a cheque for £300 under the Suggestion Scheme just before



Mr. A. H. Reincke hands Mr. G. J. Dale a cheque for £300

Christmas. It was handed to him by Mr. A. H. Reincke, General Manager of the Lightning Fastener factories.

Mr. Dale's suggestion was to substitute a mechanical operation for a manual one on two of the machines, and has greatly increased the production of fasteners.

## SALT DIVISION

### Chairman Retires

Mr. G. H. Beeby, who has been Salt Division chairman since 1953, retired from the Company's service at the end of 1956 on his appointment as chairman of the board of British Titan Products, an associated company of I.C.I.

Mr. Beeby joined Synthetic Ammonia and Nitrates Ltd. in 1929 as a chemist. Two of the next four years he spent with Casebourne & Co. dealing with building products—a period which, according to Mr. Beeby, nearly proved fatal to his career with I.C.I.! In 1933 he transferred to the sales organisation, where he served in several of the provincial sales offices before going to London at the end of 1943 as a deputy regional manager. In 1945 he joined the board of General Chemicals Division, becoming a managing director in 1948. He was appointed chairman of the Salt Division in 1953.

For some years Mr. Beeby has had many "outside" activities on behalf of the Company. He is chairman of Thorium Ltd. and a director of Hopkin and William (Travancore) Ltd.—both I.C.I. associated companies. He has also taken a keen interest in the work of the British Standards Institution, and is at present chairman of the Institution's Chemical Council.

A keen sportsman, Mr. Beeby says he has at various times tried vainly to become proficient at lawn tennis, swimming, motor-cycle racing, darts and golf, but he has now settled for moderate golf and poor but persevering snooker.



Mr. G. H. Beeby

As chairman of an associated company Mr. Beeby will by no means be severing his connection with I.C.I., and he says that he hopes to enjoy the society and the hospitality of his many friends in the Company for a long time to come.

## A.E. & C.I.

### Somerset West's Three Generations

In 1903 Ernest Bowker, a 31-year-old carpenter recently emigrated from Bolton in Lancashire, started work on the site of De Beer's new explosives factory at Somerset West in Cape Province. Mr. Bowker retired from Somerset West in 1938, but his son Fred and his three grandsons keep up the family's tradition of service.



The Bowkers of Somerset West. Back row: Brian, Donald and Malcolm, Fred. Front row: Mrs. Y. Bowker and Ronald, Ernest, Mrs. F. Bowker.

Fred Bowker joined Cape Explosives Works, as the factory was then called, in 1920. Since then he has served in many capacities, including a period as factory cashier and paymaster. His three sons, Brian (26) and twins Malcolm and Donald (23), also work at the factory; Brian and Malcolm as draughtsmen and Donald as a clerk in the Wages Department. Brian's wife, also an A.E. & C.I. employee until her marriage in 1954, adds still further to the family record.

It is a long step from the early days at Somerset West, remembered by Mr. Ernest Bowker, when there was no running water and no lights existed in the village except lamps and candles. Since then the family has accumulated a record of nearly 90 years' service at the factory.

\* \* \*

## OUR NEXT ISSUE

Sir Christopher Hinton, head of the Division of Atomic Energy responsible for industrial power, writes the leading article in our March issue. Sir Christopher was chief engineer of Alkali Division until May 1946. He has contributed a brilliantly lucid article on the principles behind atomic energy and on how this force is harnessed to produce electricity.

Our colour feature comes from Mexico, a country which Mr. Douglas Allan, personal assistant to the Chairman, visited with his chief last summer. Douglas Allan writes a pleasant and informative descriptive account of how things in Mexico struck him, and there are some very fine photographs contributed by Mr. L. W. G. Drayton of Alkali Division.

We wind up with an amusing piece from Mr. John Watney of Head Office. It is another of his schoolboy reminiscences and is called "The Smoke in Hiawatha."

## CANADA AND C.I.L. (continued from page 43)

in the United States, the very delivery wagon, the very drum containing chemicals, is an advertising medium. It must be spotlessly clean, freshly painted (often in several colours), and in the case of drums must be of the size and shape the customer likes best.

Secondly, the climate of the Canadian chemical business is intensely competitive. The major U.S. chemical companies—du Pont, Dow, Monsanto, Union Carbide and American Cyanamid—all have Canadian subsidiaries competing with one another and with C.I.L. for a footing in Canadian expansion. The pace is hot. The returns on new capital investment are often low to start with, in part because of competition, in part because new plant is designed to feed the market of tomorrow and not the market of today and therefore starts its working life at a level well below capacity.

New chemical plant has to be big—of a certain size—to be competitive. There is an old saying that you can multiply the capacity of a plant by four at double the cost. Size is therefore important. The Canadian market—under 16 million people—is generally too small to absorb new chemical plant smoothly, since a single new plant may

itself add a formidable figure, not just a small percentage, to total productive capacity. Hence, to get a footing at all in a new market, a chemical manufacturer often has to be prepared to move ahead of the market and wait for demand to catch up. All this tends to mean slow rather than quick rewards for enterprise, even though long-term growth and prosperity seem assured.

Thirdly, Canada is becoming increasingly a raw material reservoir for the United States. The risk capital behind oil, mineral and pulp-paper development is largely U.S. because it is the buoyant U.S. economy, looking ahead for sources of raw materials to feed the soaring production it expects in the future, that provides the demand and impetus behind the present Canadian boom. If the U.S. economy should recede at all drastically, if it should cut back on its purchases of the raw materials for the extraction of which vast capital sums are now being poured into Canada, then Canada could expect to feel the draught severely. On the other hand, if the United States continues to boom, Canada should continue to boom too, and C.I.L. is in a good position to command an increasing share of that prosperity.



# The Running Tide

By Francis Ashton

Illustrated by Peter Morris

*... the call of the running tide  
Is a wild call and a clear call that may not be denied.*

MASEFIELD

THE branch line train puffs away into the distance and the quiet calm of a summer's evening settles on the sleepy old East Anglian town. As we stroll down the main street there is the tang of the sea in the air, and when we have climbed on to the sea wall by the boat yard the sky is fretted with tall tapering masts. What little wind there is blows with the ebb tide, and the estuary is so smooth that only ripples disturb the reflections of the many boats on their moorings. A gull squawks as it wheels overhead and from the marshes across the river a curlew calls; here and there a halliard slats lazily against a mast.

We go down on to the slippery hard to find our dinghy, and as we row out to our little ship the sun goes down, leaving behind the gold of an Essex after-glow. We are eager to be away, for we have only two days of freedom before us, and when we have climbed aboard we do not stop to change but dump our bags on our bunks and begin to remove the sail covers. The jib comes up through the forehatch to be shackled to halliard and outhaul, the mainsail is set, and the mooring buoy goes splashing over the side. As the jib is broken out and held aweather, our ship turns on her heel and heads for the open sea. We slip silently past the host of yachts in the anchorage while the twilight deepens and the first stars show in the vault above.

At last the estuary lies blank and bare before our bowsprit and the forest of masts fades into the deepening gloom. Now and then a puff of wind heels

us slightly, but for the most part we glide along on an even keel. On either hand stretch deserted marshlands, and only in the far distance do the lights of buildings shine. The banks of the estuary are barely visible, and I catch a star in the rigging and steer by that, for by now the sky is ablaze with stars against which our mast and sails are darkly silhouetted. Where our bows cut through the water, phosphorescence glows with mysterious fire, while from somewhere ashore a sandpiper disturbs the stillness with its prattle.

The skipper goes below and lights the lamp in our snug little cabin, and soon the cheerful hum of the Primus announces that he is preparing our supper; but when his head appears above the hatchway to tell me that it is ready I am sorry my solitary trick is over—I could have gone on all night. For a few minutes we become very active; I put the helm down and we head up into wind and tide. We take in the headsails, the anchor chain rattles in the fairlead, and the mainsail comes down. Soon our sails are neatly stowed and the riding light burns at the forestay. We go below to soup and bread and cheese and enormous mugs of cocoa.



*... when we have climbed on to the sea wall by the boat yard the sky is fretted with tapering masts*

That night we sleep with the tide swirling past within inches of our heads and the stars wheeling above our open hatch. Towards midnight the tide will turn, and unknown to us our ship will swing to head into the flood, and maybe the weathergoing tide will raise a lop which will rock us while we sleep.

The next day—who knows? Perhaps we shall be sounding our way through the swatchways bound for Pin Mill, perhaps we shall potter around the nearby creeks; or perhaps the weather will turn against us and we shall be beating into strong winds with our lee rail buried in a smother of foam. But whatever we do our little voyages will be regulated by wind and tide, whose guests we are, and when we stand once more on the platform waiting for our Sunday night train, with our cheeks hot from the wind's sting and

the salt still in our skin, we shall feel that what we have been doing has been something worth while.

To many people sailing means racing—time guns and protest flags, reefer jackets and white ducks, sleek cars on the shore and sleeker hulls on the sea—but without trying to decry a fine sport I believe the true lovers of the sea are to be found in the cruising yachts. We like to think of ourselves as being a sea-faring people and our speech is filled with the metaphor of the sea, but in reality we are a nation of landlubbers; however, if anything proves that the urge is still there, it must be the host of little ships around our shores, those little ships with their two-berth cabins, their tiny fo'c'sles, their galleys consisting of a pair of Primus stoves, nosing their way



through creeks and swathways, navigating from buoy to buoy, and at times reefed right down and battling bravely with gale force winds and seas which crash and swirl upon their decks.

In these days of noise and bustle, when the garish and the cheap jar at every turn, the cruising yacht offers a temporary escape from it all and a way of living entirely different from our over-regulated lives. For the man burdened with responsibilities it affords a complete break, for he will find so many things to attend to that he will slough off his old self almost as soon as he comes aboard. There will be fresh anxieties: "Will the anchor hold?"; "Is the weather going to worsen?"; "Can I get through this channel at this state of the tide?"; anxieties which at times are so vital that his perennial worries fade into insignificance beside them; but the struggle against the elements, the struggle to master both wind and tide, is always a rewarding one and one from which he can return fortified and revitalised to his daily work.

Sailing must be the best antidote for our brave new world in which security is the operative word. When you go to sea you have no one to look to but yourself, and if you get into a scrape it is only your own resource which will get you out of it, and adventure is never far around the corner.

I remember one wild night off the Belgian coast when we were making for the lights at the entrance of Nieuport harbour away in the distance. We were caught in a violent squall; the wind rose to gale force, tearing the crests from the waves until the air was thick with spray, while the rain fell in solid sheets; for a few minutes there was a watery confusion such as I have never known before or since. We continued to approach the harbour, but it was only at the very last moment that we could see our way in. With great thankfulness we ran in between the piers and then made our way up the river Yser in the pitch dark. We tied up alongside a small vessel, whose crew—a couple of high-spirited young men—cheerfully took our lines.

In the morning we saw that they were flying a big red flag; their ship was full of explosives dredged up from the river bed! It was an ordinary enough experience for the sailing man, perhaps, but quite an adventure in the commonplace existence of a laboratory worker. There is variety in sailing which is that of the weather itself, and though it is at its most exciting when the weather is bad, there is much to be said for those blue days of bright sunshine, when the wind is

light and the seas are calm and you drift along enjoying the enforced idleness, knowing that you are in a better place than a deck chair on the prom, which so many people think the ideal relaxation. On such occasions progress becomes dead slow, but it is pointless to fret and fume; your ship carries your food and lodging, and if you do not make your intended anchorage you can drop your hook somewhere else which will do just as well.

Single-handed sailing offers the perfect way of escape from your fellow men, but it is not only misanthropic solitaires who are to be found in cruising boats; indeed, the good fellowship which is to be had among the crew of a bigish yacht is often one of its attractions.

If the lonely creek has no appeal, there are crowded anchorages and busy harbours in which to lie. There is no need to forgo the evening pint, and if you have no adventures when going to get it, you will probably have them on the way back. In harbour, going ashore often means crossing other boats and sometimes quite big ships, climbing vertical ladders and mysterious steps; in an estuary there will be the inevitable dinghy work, rowing ashore and finding a suitable landing place, and on the way back there will be the lights across the water and the phosphorescence about your oars as you pull towards the ghostly shape of your ship. This sort of thing has a charm all of its own; it is the immortal "messaging about in boats" of Kenneth Graham. In the pub itself, be it the Plough and Sail at Paglesham or the Butt and Oyster at Pin Mill, there will be other sailing types and gossip on that ever-engrossing topic, other people's boats.

The father of a family on holiday often cuts an unimpressive figure, he makes bad puns at the breakfast table and spends his day being buried in the sand or asleep in a deck chair; but if he takes his family sailing he will become the captain of the ship on whose skill as a seaman the success of the holiday, if not the safety of their lives, depends. Moreover, if his purse be slender it will give him a chance to take them abroad, for it will cost him less to cross the Channel in a chartered vessel than it will to go by packet and stay at an hotel.

I warrant that the first time he sets his own course, makes his own landfall and finds his own way into a foreign port will be an adventure that he will never forget. When he returns with his "yellow" fluttering proudly from his signal halliard he will have a fine sense of achievement, and he and his family will have



*We go below to soup and bread and cheese . . .*

a stock of memories to keep them going through the winter months ahead.

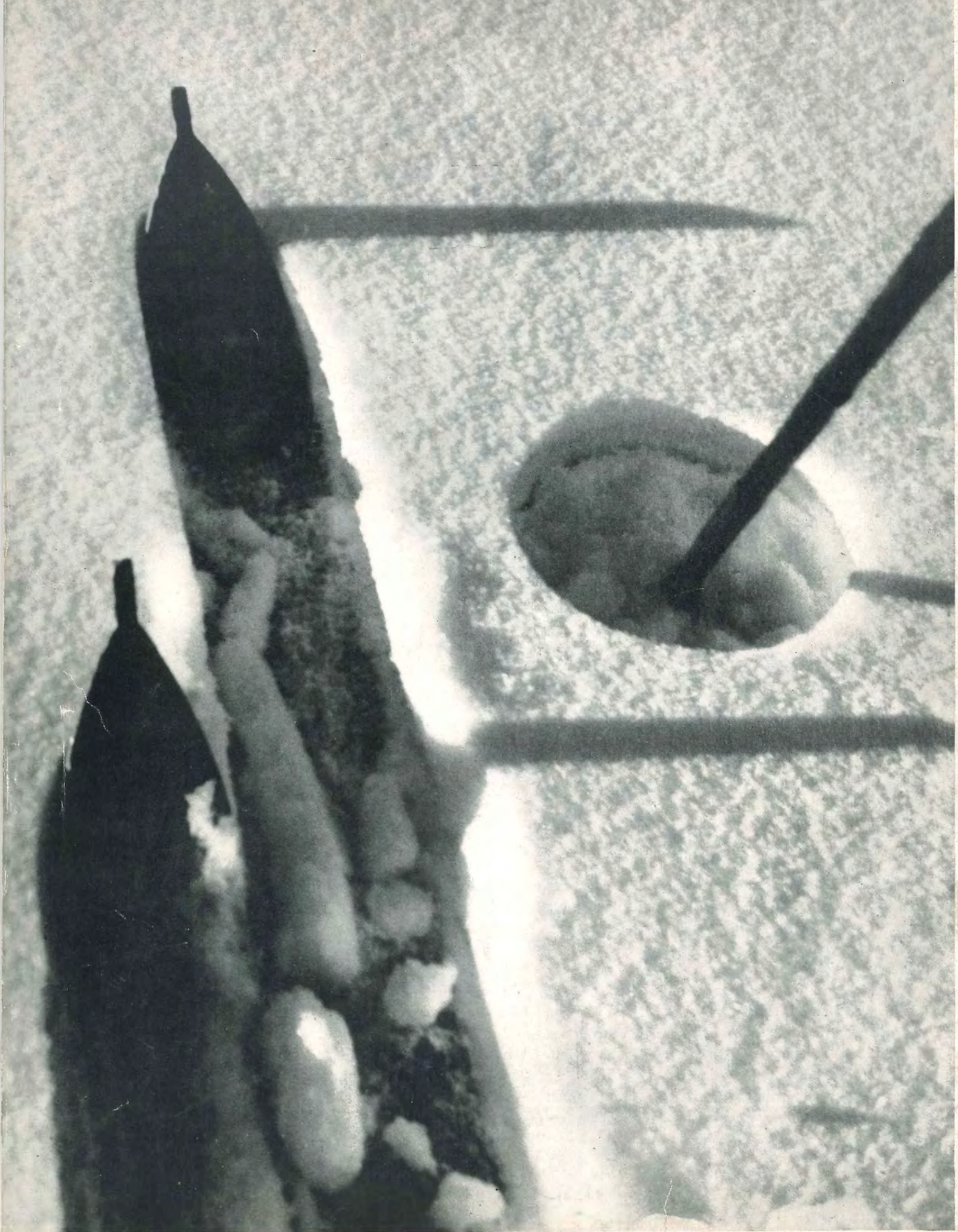
It would be idle to pretend that it is not an expensive business to buy and maintain a cruising yacht. The cost is comparable with that of running a car, and if you live far from the sea you will need a car to get you to and from your ship at week-ends; few of us can afford both.

There are other ways; I have never owned a boat of any description, but I have sailed a lot, though not as much as I should have liked. If you are capable and ready to do your share of the chores, there will be many who will welcome you aboard to crew for them, and if you join one of the big clubs and put your name down on the crew list you can often get plenty of sailing without the cares of owner-

ship. You will, however, be on another man's ship and subject to his orders; if you want your own command, you can charter.

On the occasion mentioned above, six of us chartered a thirteen-tonner for a week's cruise, during which we visited Boulogne, Calais, Ostend and Nieuport. We each paid our share of the charter fees, stores, etc., and the holiday cost us less than a week at a seaside resort would have done; but the family man who has to bear the whole cost himself is in a very different position. I wish that good charter boats were easier to come by and that charter fees were not so high, so that those to whom the slatting of a halliard against a mast and the hum of the wind in the rigging are nostalgic sounds could spend at least part of their holidays in the way they would wish.





*"Footprints"*

*Photo by Miss N. K. Lewis (Central Registry)*